PROC. BIOL. SOC. WASH.
95(1), 1982, pp. 81–88

A NEW DWARF *SPHAERODACTYLUS* FROM HAITI (LACERTILIA: GEKKONIDAE)

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Abstract.—*Sphaerodactylus omoglaux* is described from the southeastern Cul-de-Sac Plain and adjacent montane foothills of Haiti. It is a ground dwelling species of xeric to semi-xeric situations and belongs to a group of Hispaniolan *Sphaerodactylus* including *S. altavelensis* Noble and Hassler, *S. armstrongi* Noble and Hassler, *S. cryphius* Thomas and Schwartz, *S. darlingtoni* Shreve, *S. nycteropus* Thomas and Schwartz, and *S. streptophorus* Thomas and Schwartz.

Recent fieldwork in Haiti resulted in the discovery of an undescribed small species of *Sphaerodactylus* in the southeastern part of the Cul-de-Sac Plain and adjacent foothills of the Massif de la Selle. This new sphaerodactyl is related to the recently described *Sphaerodactylus cryphius* and *S. streptophorus* (Thomas and Schwartz, 1977).

Abbreviations.—ASFS refers to the Albert Schwartz Field Series, CM to the Carnegie Museum of Natural History, RT to Richard Thomas's personal collection, UMMZ to the University of Michigan Museum of Zoology, and USNM to the National Museum of Natural History.

Sphaerodactylus omoglaux, new species
Figs. 1–3

Holotype.—USNM 221840, adult female, taken on the eastern edge of the town of Fond Parisien near the shore of Etang Saumâtre, Dépt. de l'Ouest, Haiti, on 1 August 1979 by Richard Thomas.

Paratypes.—ASFS V50461–62, 0.7 km E Fond Parisien, 16 July 1978, R. Thomas; ASFS V50463, RT 5681, same locality as preceding, 23 July 1978, R. Thomas; RT 7173, ca. 1 km E Fond Parisien, 2 July 1979, R. Thomas; RT 7682, UMMZ 172100–01, CM 83302, USNM 221841, same data as holotype; RT 5591, 8 km airline NW Fond Verrettes, ca. 0.3 km by road west of the ford across the Rivière Soliette, 424 m, 19 July 1978, R. Thomas; all paratypes are from the Dépt. de l'Ouest, Haiti.

Diagnosis.—A small species of *Sphaerodactylus* (Fig. 1), maximum snout-vent length 20 mm; dorsal scales flattened, keeled, imbricate (30–34 between axilla and groin), no area of middorsal granules or granular scales; smooth throat and ventral scales (27–30 between axilla and groin); 51–57 scales around midbody; dorsal body scales with 5 to 9 hair-bearing scale organs, each with one hair, along distal edge of scale; rostral with a large flat dorsal area bordered by a rim and sloping towards the tip; 2 postnasals; large cobble-like snout scales (10–13 across base of snout). Head (Fig. 2) with a bilobed light anterior figure having posterolateral extensions; paired, transverse mid-nuchal marks; paired but separate scapular ocelli; traces of dorsolateral striping; dorsal body pattern of scattered dark

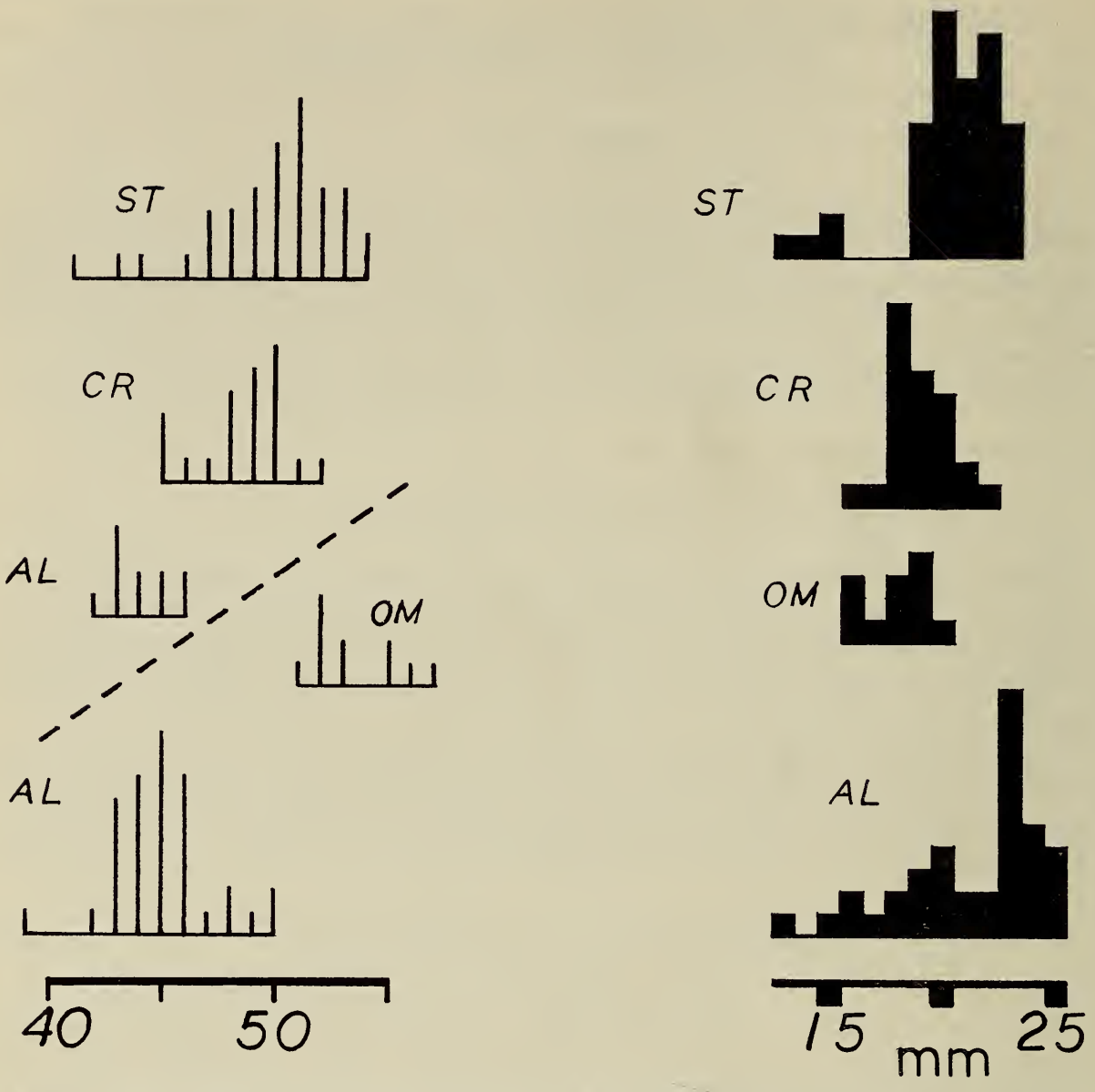

Fig. 1. Line histograms of midbody scale counts (left side of figure) for *Sphaerodactylus omoglaux* (OM), *S. cryphius* (CR), *S. streptophorus* (ST, sample from the Pedernales area, Dominican Republic), and *S. altavelensis* (AL). The *altavelensis* sample above the dashed line is from the area of sympatry with *S. cryphius*, that from below the line is from the area of sympatry with *S. omoglaux* (Fond Parisien localities). The right side of the figure shows histograms of snout–vent length in mm size classes; in all graphs the smallest vertical unit is a single individual.

brown flecks; lineate sacral figure; lineate-ocellate caudal pattern; boldly lined throat in males; no ventral lines.

Description of holotype.—An adult female, 19 mm snout-vent length, tail (partly regenerated), 13 mm; dorsal body scales flattened, strongly keeled, acute and imbricate, 31 between axilla and groin; throat scales smooth, not becoming extremely minute on central throat area; ventral scales smooth, flattened, rounded, imbricate, 30 between axilla and groin; 52 scales around midbody; lamellae of fourth toe of left pes 9. Snout moderate, rostral scale with large dorsal flat area bordered by a rim and sloping toward tip; snout scales broad, subhexagonal, keeled, cobble-like and subimbricate; 1 internasal; 2/2 postnasals; 3/3 supralabials to mid-eye; temporal scales and dorsal head scales keeled, juxtaposed, subim-

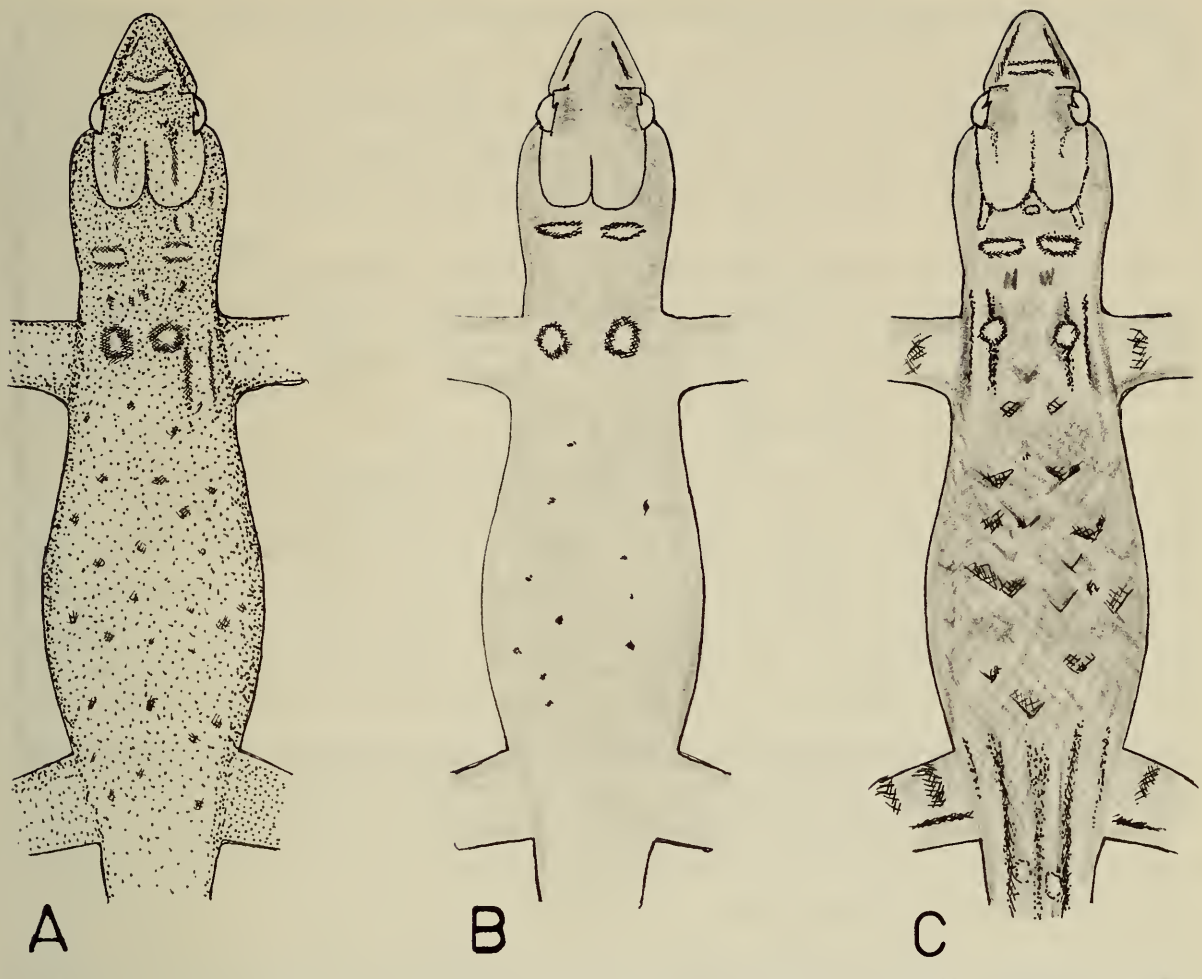

Fig. 2. Dorsal patterns of *S. omoglaux*: A, RT 7686; B, RT 5591; C, USNM 221840 (holotype).

bricate; first infralabial broader anteriorly than posteriorly, subrectangular; dorsal scales of tail acute, keeled, flattened and flat-lying; ventral scales of tail smooth and enlarged in median line.

Dorsal ground color in life brown, markings darker brown to nearly black; head with dark preocular lines and a pale transverse snout bar; pale anterior cephalic figure bilobed, extending behind eyes onto parietal region and having a short pale extension from the posterolateral corner of each lobe; a small pale parietal spot in the space between the posterior parts of the lobes; a pair of pale, dark-edged, transverse mid-nuchal marks; paired pale (cream) dark-edged scapular ocelli dorsolaterally positioned and not joined by a scapular patch of dark pigment; broad, dark-edged dorsolateral stripes present in scapular region, the uppermost stripe edge on each side interrupted by a scapular ocellus; stripes fading out just beyond level of axilla; dorsum brown with irregular mottling and spotting of darker brown; sacral markings of indistinct dark lines; caudal pattern lineate (dorsolateral, lateral, and ventrolateral dark lines) with light spots or ocelli spaced along the dorsalmost pair; venter unpatterned, pale (off-white) in life.

Variation.—The maximum snout-vent length is 20 mm (female); two egg-bearing females are 19 mm, and the smallest escutcheoned male is 16 mm (largest male 18 mm). The scale morphology of the paratypes is similar to that of the holotype. Eight specimens have one internasal; 4 have 2; postnasals are 2/2 in all but one having 1/2; scales across the snout between the posterior ends of the first

supralabials are 10 (3 specimens), 11 (4), 12 (5), 13 (1); upper labials to mid-eye are 3/3 in all; dorsal scales between axilla and groin are 30–33 ($\bar{x}$ = 31.6); ventral scales axilla to groin, 27– 30 ($\bar{x}$ = 28.8); scales around midbody, 51–56 ($\bar{x}$ = 53.5); subdigital lamellae 8 (1), 9 (9), or 10 (2); keeling of throat and ventral scales is absent in all. The escutcheon of males varies from 5 to 7 scales long and from 15 to 19 scales wide.

In color and pattern the paratypes are generally similar to the holotype. All have a bilobed anterior head figure, each lobe with a median postpalpebral line of dark pigment. All but one show some evidence of the posterolateral extensions of the lobes (in three the extensions are indistinct or irregular). All have the preocular lines; all but three have the transverse snout bar, either pale as in the holotype or with the dark posterior edge being the most salient feature and thus appearing as a dark snout bar; median snout pigmentation varies from pale, nearly unpigmented, to solidly pigmented with dark brown or pigmented but with a light center. Nine of the 12 paratypes have plainly evident paired transverse mid-nuchal marks; in two the marks are obscured by irregular mottling of pigment, and in one they are absent. All specimens show some indication of the dorsolateral stripes in the scapular area, even if only unilaterally. Paired scapular ocelli are found in all and are distinctly separate, not interconnected by a dark patch, although each ocellus is surrounded by a zone of dark pigment (Fig. 2). Dorsal body coloration varies from almost uniform brown through the presence of isolated small brown flecks on a paler brown ground color to being fairly heavily mottled with irregular dark scale clusters. The sacral pattern is not prominent and consists of, when present, the dark dorsal edges of the dorsolateral lines which reappear in the sacral region. Unregenerated tails show the lineate and ocellate condition described for the holotype, the most proximal pair of ocelli often being the most prominent. Throats are heavily streaked with dark brown lines in the three largest males (the fourth male is very small, and the throat lines are present but not bold). Females lack throat streaking or show it only very weakly. Ventral coloration is pale (largely unpigmented) in most, but some have a peppering of melanophores over much of the surface, concentrated around the scale edges; the venters are never lined.

Distribution.—Known only from the southeastern part of the Cul-de-Sac Plain of Haiti from the region of Fond Parisien southeastward into the foothills of the La Selle near Soliette (Fig. 3).

Comparisons.—*Sphaerodactylus omoglaux* belongs to a closely related group of generally small to medium-sized species that includes *darlingtoni* Shreve, *altavelensis* Noble and Hassler, *armstrongi* Noble and Hassler, *streptophorus* Thomas and Schwartz, *cryphius* Thomas and Schwartz, and *nycteropus* Thomas and Schwartz. The last four and *S. omoglaux* appear to form a more closely related cluster within the group (Thomas and Schwartz in press). With the exception of *S. armstrongi,* these are small species. These four share polythetically a suite of characters, and the distributions are largely allopatric or parapatric (Fig. 3). Although sympatry is likely for at least two of the group, conspecific relationship between others cannot be ruled out. Because of the commixture of characters, even in sympatric members of the (larger) group, it is unwise to assume subspecific relationship without clear evidence of intergradation.

The most pertinent comparisons are with *Sphaerodactylus cryphius,* known

Fig. 3. Map of a portion of southern Hispaniola. Hexagons indicate *S. omoglaux* localities; rhombs, *S. cryphius*; circles, *S. streptophorus*, and triangles, *S. armstrongi*.

from the south side of the Valle de Neiba, some 50 km to the southeast, in the Dominican Republic, and with *S. streptophorus* of the western, mostly peripheral, parts of the La Selle-Baoruco massif (Fig. 3). *Sphaerodactylus omoglaux* seems to be the ecological equivalent and the geographical vicariant of *S. cryphius*. In comparison with *omoglaux, cryphius* has a reduced color pattern with less elaborate and less contrasting markings; the most striking absolute difference between the two lies in the nature of the scapular ocelli: prominent and separate with no conjoining patch in *omoglaux,* absent or small and close-set and with a small, non-enclosing but conjoining patch in *cryphius* (Figs. 2, 4). Furthermore the two taxa are strongly different in midbody scale counts (Fig. 1; Student's *t*-test indicates $P < 0.01$ that the two samples are from the same population). *Sphaerodactylus cryphius* also lacks sexual dichromatism in the throat pattern or any other feature.

Sphaerodactylus streptophorus is a distinctly larger lizard. Its scale counts strongly overlap those of *omoglaux,* but its head pattern differs strongly from that of *omoglaux* (Fig. 4A), although it may have a cognate of the anterior cephalic figure (but not bilobed: Fig. 4B). The scapular ocelli, when present, are separate, as in *omoglaux,* but not as boldly dark-edged and are sometimes farther back on the body. The cognate of the mid-nuchal marks of *omoglaux* in *streptophorus* is usually a thin transverse light line (whence the specific epithet meaning "wearing a necklace"), although it may be broken into two segments. Another frequent feature of *streptophorus* is a long diagonal postauricular mark that often meets part of the cephalic figure to form a mesially directed temporal wedge.

Sphaerodactylus armstrongi is a medium to large-sized member of this group

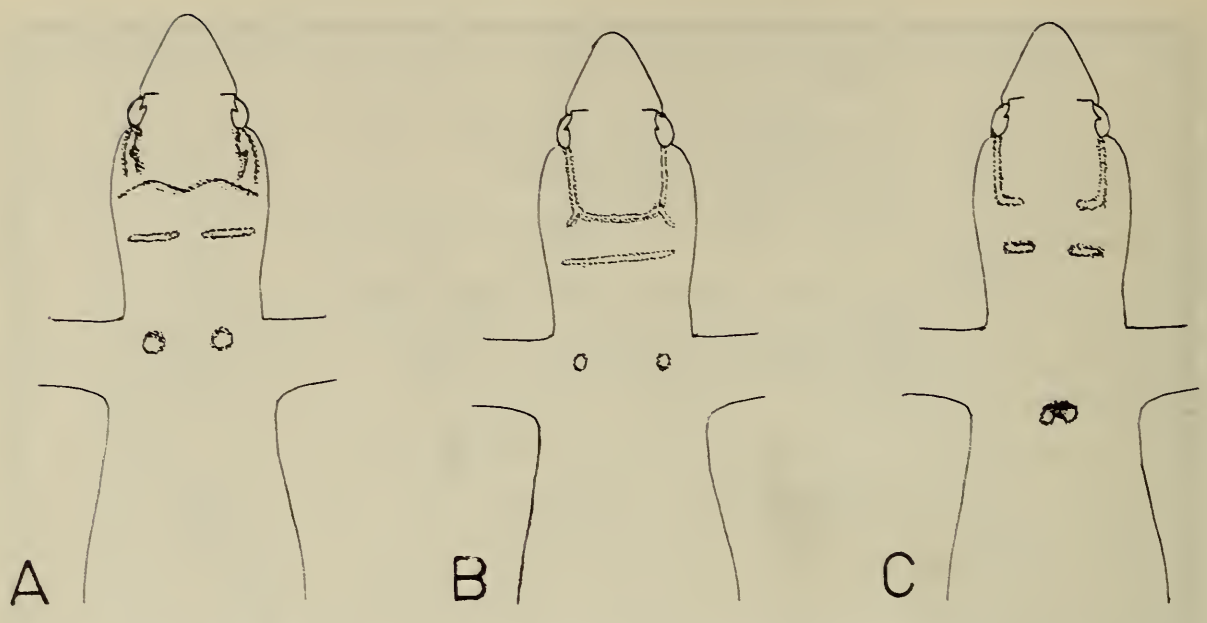

Fig. 4. Semi-diagrammatic anterior dorsal patterns of *S. streptophorus* (A. ASFS V2580; B. ASFS V2590) and *S. cryphius* (C. ASFS V20511).

that occurs in the uplands and easternmost lowlands of the La Selle-Baoruco ranges. It lacks the bilobed cephalic figure, but it may show a light dorsal head pattern bounded by postocular stripes and an occipitonuchal M–shaped figure (subspecifically variable). The postauricular marks (legs of the M) are probably homologues of the shorter, posteroventral light marks that extend from the corners of the cephalic figure in *omoglaux*. Easternmost *S. armstrongi* often has prominent, separate scapular ocelli somewhat resembling the condition in *omoglaux*. *Sphaerodactylus armstrongi* further differs in having one postnasal and a rounded rostral that does not have a sharply delimited flat area and does not slope towards the tip. *Sphaerodactylus armstrongi* also differs from *omoglaux* (and *Streptophorus, cryphius*, and *nycteropus*) in its proportionately larger ear openings.

Sphaerodactylus nycteropus lacks mid-nuchal marks or scapular ocelli; it does have, in some specimens, a cephalic figure but no posterolateral marks. Evidence of dorsolateral lines is present. The venter is strongly lined. In scale characters and size *nycteropus* does not differ markedly from *omoglaux*. *Sphaerodactylus nycteropus* is now known from a total of five specimens.

It is pertinent to compare *S. omoglaux* and *S. altavelensis*, which occur syntopically. Both are small sphaerodactyls of generally similar appearance, although *altavelensis* is somewhat larger (Fig. 1). Both have similar scale morphology, although *omoglaux* has higher midbody scale counts and lacks the keeling on the throat that is present in *altavelensis*. Reflecting the size difference, the modal number of subdigital lamellae is 10 in *altavelensis*, 9 in *omoglaux*. Both species have bilobed anterior cephalic figures, and the posterior cephalic figure of *altavelensis* may be the homologue of the mid-nuchal marks of *omoglaux*. *Sphaerodactylus altavelensis* has small, close-set scapular ocelli that are situated on

the outer edges of an irregular scapular patch. The patch may have a short light anterior margin giving it a straight border anteriorly and may also have indications of a larger, enclosing but not delimiting, light border laterally and posteriorly (this feature and patch size varies in different subspecies of *altavelensis*; see Thomas and Schwartz (in press) for a discussion of variation in *altavelensis*). The bold throat pattern is lacking in either sex of *altavelensis*, although faint striping is present in some individuals, but the venter is lined.

Remarks.—At the two localities near Fond Parisien all of the specimens of *Sphaerodactylus omoglaux* were collected in leaf litter and beneath rocks within about 200 m of the south shore of Etang Saumâtre. The habitat is a mixture of xerophytic scrub (*Acacia, Prosopis, Opuntia, Cephalocereus*) and more mesic woods, which include *Sabal* palms, *Swietenia, Mangifera, Tamarindus, Catalpa*, etc. There is a moderate gradient going toward the shore of the lake, where the habitat becomes more mesic and densely vegetated, although open and closed situations are patchy due to cutting by man. The only other sphaerodactyl that we found was *S. altavelensis*, which occupies the same ground habitat as *omoglaux*. We obtained *altavelensis* in greater numbers than *omoglaux* (about 3 to 1). All of the *omoglaux* were obtained by one person, whereas native collectors contributed to our sample of *altavelensis*. *Sphaerodactylus altavelensis* is common in all of the leaf-litter habitats in the more or less wooded situations, whereas *omoglaux* seems to be confined to shadier, lower canopy (or thicker canopy) situations. We were unsuccessful in attempting to collect any sphaerodactyl in the pure desert scrub a few kilometers to the northwest of Fond Parisien, although some species almost certainly occur there.

Sphaerodactylus omoglaux exists at least macrosympatrically with *S. copei, S. elegans*, and *S. cinereus*, in addition to *S. altavelensis*, just discussed. The first three are large species and are inhabitants principally of trees, rock crevices, or other three-dimensional niches (e.g., wood piles, thatch roofs). The single specimen of *S. omoglaux* from 8 km NW Fond Verrettes was taken from a dead *Agave* rosette in xerophytic scrub, where the road runs along a hillside above the Rivière Soliette at an elevation of 427 m. This locality is about 15 km southeast of the type-locality and is the most xeric situation in which the species was found. A specimen that has been referred to *S. streptophorus* was taken at Soliette, probably less than a kilometer from the locality for the specimen of *omoglaux* just mentioned. The road descends along the xeric hillside, fords the Rivière Soliette, and then proceeds along a shadier, more mesic riverside area that is Soliette proper. The surrounding hillsides are open—scrubby or cultivated. The two species, *omoglaux* and *streptophorus*, may coexist in this area, each restricted to patches of appropriate habitat.

Etymology.—*Omoglaux* is from the Greek, *omos*, shoulder, and *glaux*, owl, which is derived from *glaukos*, gleaming, in reference to the eyes. The allusion is to the prominent, separate scapular ocelli.

Acknowledgments

I wish to thank Luís Rivera Cruz for his capable assistance in the field. The fieldwork during which the specimens of *Sphaerodactylus omoglaux* were collected was supported by National Science Foundation Grant SER 77-04629.

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